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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/768,660	02/02/2004	Wiley Eugene Hill	H1501	8252
45114	7590	05/12/2005		EXAMINER
				NGUYEN, THINH T
			ART UNIT	PAPER NUMBER
				2818

DATE MAILED: 05/12/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/768,660	HILL ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Thinh T. Nguyen	2818	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 18 April 2005.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) \_\_\_\_\_ is/are allowed.
- 6) Claim(s) 1-20 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on 02 February 2004 is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) All    b) Some \* c) None of:
    1. Certified copies of the priority documents have been received.
    2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED OFFICE ACTION**

1. This Office Action is in response to Applicant Communication with the Office on 4/18/2005.

### **Specification**

2. The specification has been checked to the extent necessary to determine the presence of all possible minor errors. However, the applicant cooperation is requested in correcting any errors of which the applicant may become aware in the specification.

### **Claim Rejections - 35 USC § 102**

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102(b/e) that form the basis for the rejections under this section made in this office action.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claim 1, 17 are rejected under 35 U.S.C. 102(e) as being anticipated by Bryant et al. (U.S. Patent Application Publication 2005/0001273).

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## REGARDING CLAIM 1.

Bryant (fig 1, the abstract, paragraph [0040]) discloses a semiconductor device, comprising: a fin structure comprising a semi conducting material, the fm structure including a channel stop layer (fig 1 layer 104); a source region formed at one end of the fin structure, the channel stop layer separating the source region into a first source region (fig 1 reference 108) and second source region; a drain region formed at an opposite end of the fin structure, the channel stop layer (fig 1 layer 104) separating the drain region into a first drain region and second drain region; and at least one gate (fig 1 layer 106).

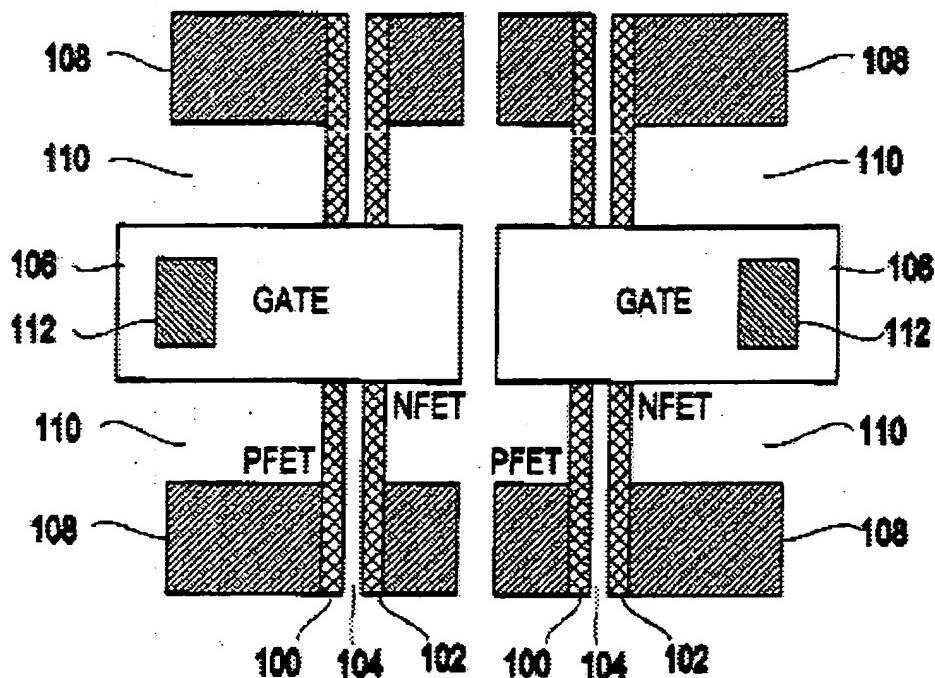


FIG.1

REGARDING CLAIM 17

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Bryant ( fig 1, the abstract, paragraph [0040] ) discloses a semiconductor device comprising: an N-channel device including a first source region, a first drain region, a first fin structure ( fig 1 layer 100), and a gate ( fig 1 layer 106) ; and a P-channel device including a second source region, a second drain region, a second fin structure, and the gate, the second source region, the second drain region, and the second fin structure being separated from the first source region, the first drain region, and the first fin structure by a channel stop layer( fig 1 layer 104).

### **Claim Rejections - 35 USC § 103**

5. The following is a quotation of U.S.C. 103(a) which form the basis for all obviousness rejections set forth in this office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains.  
Patentability shall not be negated by the manner in which the invention was made.

6. Claims 2,3,5,6,7,8,9,10,12 ,14,15,16,18,19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bryant et al. ( U.S. patent Application publication 2005/0001273 ) in view of Pham et al. ( U.S. patent 6,838,322).

**REGARDING CLAIM 2,3,5,6,7,8,9,10,12 ,14,15,16,18,19.**

Bryant ( fig 1, the abstract, paragraph [0040] ) discloses all the inventions of claims 2,3,5,6,7,8,9,10,12 ,14,15,16,18,19. except for a channel stop layer using the retrograde doping

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technique. Pham et al., however, discloses ( column 1 lines 30-31) how to increase device density by using the retrograde doping technique.

It would have been obvious to one of ordinary skill in the art the time the invention was made to combine the teachings by Bryant and Pham et al. and come up with the invention of claims 2,3,5,6,7,8,9,10,12 ,14,15,16,18,19 since a person skilled in the art would have been motivated to use a technique available to him to produce steep structure as suggested by Pham et al.

7. Claims 4,11, 13,20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bryant et al. ( U.S. patent Application publication 2005/0001273 ) in view of Pham et al. ( U.S. patent 6,838,322) and in further view remark.

**REGARDING CLAIM 4,11,13, 20**

The combined teachings by Bryant and Pham disclose all the invention except for the fin width dimension or the ion implantation level. These features, however, are considered obvious since it has been held that when all the general conditions of a claims are disclosed in the prior art; discovering the optimum value or workable range involves only routine skill in the art.

8. When responding to the office action, Applicants are advised to provide the examiner with the line numbers and the page numbers in the application and/or references cited to assist the examiner to locate the appropriate paragraphs.

9. A shortened statutory period for response to this action is set to expire 3 (three)

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months and 0 (zero) day from the day of this letter. Failure to respond within the period for response will cause the application to be abandoned (see M.P.E.P. 710.02(b)).

## CONCLUSION

10. The prior arts made of record and not relied upon are considered pertinent to applicant disclosure: Parke (US patent 6,580,137) discloses a damascene double gate transistors and related manufacturing methods.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thinh T Nguyen whose telephone number is 571-272-1790. The examiner can normally be reached on Monday-Friday 9:00am-6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached at 571-272-1787.

The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Thinh T. Nguyen

TN

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David Nelms  
Supervisory Patent Examiner  
Technology Center 2800